

I Claim:

1. A honeycomb body, comprising:

a housing;

a matrix having an average initial diameter and connected to said housing; and

at least one contraction limiter causing an outwardly directed tensile stress in at least one part of said matrix, so that the average initial diameter of said matrix decreases by at most 5% during and/or after a thermal stress.

2. The honeycomb body according to claim 1, wherein said matrix is connected to said housing by said at least one contraction limiter.

3. The honeycomb body according to claim 1, wherein said at least one contraction limiter has a first end region connected to said matrix resulting in a formation of a connecting region, and a second end region connected to said housing resulting in a formation of a fastening region.

4. The honeycomb body according to claim 1, wherein:

said at least one contraction limiter and said matrix have a common connecting region; and

said matrix has walls connected to one another by joining connections, the tensile stress being applied through said common connecting region and corresponding at most to an average strength of said joining connections of said walls to one another and/or to an average strength of said walls themselves.

5. The honeycomb body according to claim 1, wherein the tensile stress produced by said at least one contraction limiter is effective in a temperature range of from -40°C to 1050°C .

6. The honeycomb body according to claim 1, wherein said at least one contraction limiter and said matrix have a common connecting region, said common connecting region is disposed close to an end side of said matrix.

7. The honeycomb body according to claim 1, wherein said matrix and said housing define an annular gap between them and surrounding said matrix, and said at least one contraction limiter seals said annular gap surrounding said matrix.

8. The honeycomb body according to claim 1, wherein:

said matrix has a circumference; and

said contraction limiter is one of a plurality of contraction limiters disposed axially one behind another, with an offset with respect to one another in a direction of said circumference of said matrix.

9. The honeycomb body according to claim 1, wherein said at least one contraction limiter and said matrix are formed from different materials.

10. The honeycomb body according to claim 1, wherein said matrix is thermally insulated with respect to said housing.

11. The honeycomb body according to claim 1, wherein said at least one contraction limiter has a coefficient of thermal expansion which is different from said matrix.

12. The honeycomb body according to claim 1, wherein said matrix has walls formed of at least partially structured sheet-metal foils stacked and/or coiled forming channels through which a gas can flow.

13. The honeycomb body according to claim 12, wherein said matrix is at least partially surrounded by an outer structured foil.

14. The honeycomb body according to claim 12, wherein said sheet-metal foils have a thickness of less than 0.06 mm.

15. The honeycomb body according to claim 12, wherein said matrix has a channel density greater than 600 cells per square inch.

16. The honeycomb body according to claim 1, further comprising a catalytically active coating disposed on said matrix.

17. The honeycomb body according to claim 1, wherein said at least one contraction limiter has means for preventing crack propagation.

18. The honeycomb body according to claim 12, wherein said sheet-metal foils have a thickness of less than 0.03 mm.

19. The honeycomb body according to claim 12, wherein said matrix has a channel density greater than 1000 cells per square inch.

20. The honeycomb body according to claim 12, wherein said matrix is at least partially surrounded by an outer structured foil that at least partially forms said at least one contraction limiter.

21. The honeycomb body according to claim 6, wherein said common connecting region is disposed a distance to said end side of said matrix in a direction of an axis of said matrix.

22. The honeycomb body according to claim 21, wherein said distance to said end side is less than 20 mm.

23. The honeycomb body according to claim 21, wherein said distance to said end side is less than 10 mm.

24. The honeycomb body according to claim 8, wherein said plurality of contraction limiters are flexible in a direction of an axis of said matrix for allowing a free axial contraction and expansion of said matrix.

25. The honeycomb body according to claim 1, wherein the honeycomb body is used in an exhaust system of an internal combustion engine.

26. The honeycomb body according to claim 1, wherein said matrix is a metallic matrix.

27. The honeycomb body according to claim 1, wherein the average initial diameter of said matrix decreases by at most 2% during and/or after the thermal stress.